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Evaluating the Awareness and Usage of Exclusive Breastfeeding amid Nursing Mothers in Northern Ghana

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: Exclusive breastfeeding for babies has only been practiced in a few countries, including Ghana, despite clear indications in the literature that it should be done. Mothers' information and mindset, as well as socio-demographic and cultural issues, affect their awareness of and use of exclusive breastfeeding, according to the research.
The study seeks to determine the level of awareness and practice of exclusive breastfeeding among nursing mothers in the Tamale Metropolis of Ghana.

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Methods: A descriptive study was carried out among 200 community nursing women with infants ranging in age from 0–to 24 months in the St Charles community in the Ghanaian capital of Tamale. The information was gathered through the use of a questionnaire that includes both closed and open-ended questions. Recruiting respondents for the study was accomplished through the use of simple random sampling.
Findings: Despite having a high level of publicity about exclusive breastfeeding, the mothers did not exclusively breastfeed their newborns due to a lack of understanding. Women mistook some signals of the child as an indication that the newborns wanted to eat or drink something, believing that breast milk was insufficient to meet their children's nutritional demands, and misread healthcare professionals' suggestion to exclusively breastfeed their children.
Recommendations: Health professionals should provide more counseling time to less educated mothers and caregivers of children in addition to disseminating health messages.

Keywords: Exclusive breastfeeding; infants; mothers involve: nursing mothers; rural; lactating; Nutrition; northern; Ghana; Sub Sahara Africa.

1. INTRODUCTION

The advancement of exclusive breastfeeding for the first half-year of a child's life after birth is one of the most successful plans for minimizing newborn infections and death in resource-constrained nations [1]. During the preceding decade, there has been a significant increase in interest in using EBF as the best feeding technique for babies all over the world as the best feeding strategy for newborns (Afaya et al., 2017). It is critical for a newborn's survival, nourishment, and development to breastfeed him or her from birth (World Health Organisation [WHO], 2015). In addition to improving child survival [2], EBF promotes healthy brain development, improves

cognitive and sensory function, and has been associated with enhanced intellect and academic achievement in children.

Breastmilk comprises all of the nutrients that a baby wants to grow up strong and healthy in the first year. Neonates who are exclusively breastfed have fewer infections and are less prone to develop major illnesses than their counterparts who are not. Women who practice EBF have an increased chance of experiencing prolonged lactation amenorrhea [3]. The number of women who exclusively breastfeed is about 38 percent worldwide. Furthermore, the World Health Assembly declaration in 2021 for at least fifty percent improving the rate of EFB by 2025 is still in the process. Exclusive breastfeeding is practiced exclusively by 52.3% of infants under 24 weeks in Ghana [4].

Because of poor sanitary conditions, a high morbidity rate, and contaminated drinking water in developing nations, it is critical to practice EBF throughout the first six months of a child's life. Providing an infant with only breast milk is the safest, healthiest, and most cost-effective means of feeding them (UNICEF, 2013). According to breastfeeding research findings, good nursing technique saves over 800,000 babies each year in developing nations (UNICEF, 2015; WHO, 2016). According to the conclusions of the research, it has been demonstrated that EBF is not practiced in equal measure; most mothers support the concept but are unable to exclusively breastfeed their children.

There are a variety of reasons that have been identified as obstacles to effective exclusive breastfeeding. These include cultural, sociological, health-related, and economic problems [5,6]. Studies show that about ninety-eight percent of Ghanaian babies are breastfed at some time in their lives (Ghana Demographic and Health Survey, 2020). The average duration of EBF is 16 weeks, and between 24 to 36 weeks, 73 percent of breastfed neonates are given complimentary meals (Ghana Statistical Service (GSS), Ghana Health Service (GHS), and ICF International., 2015). Despite the health benefits of EBF and worldwide efforts to promote it, EBF in Ghana has reduced by 17 percent between 2008 and 2014 [7]. Breast and ovarian cancer risk are declined in mothers who put into practice EBF guidelines (WHO, 2009). World Health Organization [8], the positive impact of EBF is a lifelong impact on mothers who breastfed their babies but not only limited to the lactation period. EBF practice is highly beneficial to low nutrition, poor sanitation, and high disease rates areas. This is because giving alternative meals to newborns before they are six months old is typically linked to contamination during the preparation and administration procedure.

These mistakes can lead to diarrheal infections such as cholera and dysentery, which can result in childhood mortality (WHO, 2009). World Health Organization [9], with EBF coverage of 90 percent, nearly thirteen percent of demises of infants under sixty months in developing nations may be avoided. This conclusion is in line with previous findings that believe in starting breastfeeding within the first hour of birth can save about 20 percent of neonatal fatalities in third world countries [10]. More so, good EBF practices have the potential to prevent 12% of neonates under 20 weeks from serious morbidity [11]. Comparing children who are exclusive breastfed with non-breastfed children, children who are exclusively breastfed are less sensitive to childhood ailments and are 14 times more likely not to suffer from illness [11]. Third world countries with low EBF prevalence, childhood mortality is high. In Ghana, for example, neonatal death is 53 per 1,000 live births, whereas death among neonates under sixty months is 31 per 1000 live births, and these death rates are largely attributed to mothers' insufficient EBF practices [12].

Studies in Ghana found that if all infants started nursing during the first hour after birth, neonatal fatalities may be avoided (GSS, 2011). Infant and young child feeding (IYCF) program, convention on the rights of the child, and baby friendly hospital initiative are some of the strategic rules implemented in Ghana to support EBF practice (Jones et al., 2003). Upon the implementation of these rules, EBF rate still remains below expected target of 90 percent by the WHO in Ghana.

According to a report from Ghana's multiple indicator cluster surveys, EBF in Ghana reduced from 63.7 percent in 2008 to 46 percent in 2011 (GSS, 2011). In practice, the global rate of EBF is 39 percent with 36 percent being practice in low-income countries (WHO, 2009). Many challenges to good nutrition and baby feeding behaviors have been discovered. These challenges include minds made of infant feeding practices, as well as lack of information and assistance on proper feeding practices, particularly EBF for the first six months of life, are significant among them [12].

However, based on the literature reviewed at the beginning of this study, there appears to be limited evidence on the related factors associated with EBF knowledge and practice in the Tamale metropolis, and no study has covered majority of EBF among lactating mothers in the Tamale metropolis's St Charles community. As a result, the study's goal was to analyze nursing mothers' awareness and usage of EBF in the St Charles community in Ghana's Northern Region.

2. METHODS

2.1 Study Design

A descriptive cross-sectional, and quantitative methods were used to collect the data.

2.2 Study Population

In this research, the study's target demographic consisted of mothers who lived in the St Charles community. The total number of women in the community was estimated to be 1125 individuals.

2.3 Setting

The research was carried out at the St Charles settlement, which is located inside the Tamale Metropolis. Tamale is the Capital of Northern Region and one of the country's six metropolitan areas, as well as the only metropolitan area in the country's Northern Region. Tamale is a cosmopolitan metropolis that is also one of the fastest expanding towns in West Africa, which made it the ideal location for the research to be conducted. In 2014, the Tamale Metropolis had a total population of 371,351 persons (according to the Ghana Statistical Service), and it was home to people from both urban and rural communities. The community is multi-tribal community.

2.4 Inclusion Criteria

Women of childbearing stage and presently nursing mothers during the study and/or had ended breastfeeding no more than one year prior to the study's start date were eligible to participate.

2.5 Exclusion Criteria

Mothers who have never nursed or who are temporary guests to the town, mothers of newborns with extreme sickness, such as congenital deformities, mothers suffering from mental illness, and mothers suffering from certain disease conditions that made breastfeeding impossible, such as AIDS and breast cancer, were excluded from the program.

2.6 Sampling

Respondents were chosen using simple random sampling based on the inclusion and exclusion criteria.

2.7 Sample Size Determination

The total population of women in the St Charlese community was estimated at 1125. The sample size for the survey was computed according to the formula for sample size determination by Yamane (1967).

$$n = \frac{N}{1+Ne^2}$$

Where *n* is required sample size.

N is the total population size which is 1125.
e is acceptable sampling error (0.05) at 95% Confidence Interval
By substitution:

$$n = \frac{1125}{1+1125(0.05)^2} \quad n = 295$$

Hence, the sample size for the study = 295 respondents.

Using an estimated population of 1125 women, a sample size of 295 respondents was needed for this study. In order to reduce inaccurate results and make up for non-responsiveness, the sample size was rounded off to 324 respondents. Therefore, a total of 324 women were invited into the study.

Data collection instrument: It was decided to use a questionnaire that contained both closed and open-ended questions in order to collect all data on socio-demographic factors (maternal age, infant's age, parity, as well as maternal educational level, as well as marital, occupational, and religious status), knowledge about exclusive breastfeeding (EBF), attitude and practice toward EBF. The open-ended questions were added in order to acquire a better understanding of why mothers chose a particular response. The Food and Agriculture Organization (FAO) of the United Nations standards for assessing nutrition-related knowledge, attitudes, and practices (KAP) document served as a model for the items on the questionnaire's knowledge, attitude, and practice scales of the EBF. A reference guide and practical techniques for conducting high-quality evaluations of nutrition and health-related knowledge and behaviors at the community level are contained within this booklet. Among other topics, this manual includes 13 module questionnaires that collect information on important knowledge, attitudes, and practices related to 13 of the most common nutrition issues, such as feeding infants (0–6 months), feeding young children (6–23 months), and diet of school-aged children, among others. The questionnaire referring to feeding infants younger than 6 months of age was customized for this study in accordance with the aims and objectives of the investigation.

Several nations have field tested the FAO questionnaire to ensure that it is valid, understandable, and easy to administer while also being less burdensome on respondents. The questionnaire has been validated in several countries. The knowledge scale of the questionnaire consisted of 13 questions on assessment of mothers' understanding and intellectual capacity to recall the benefits of EBF, duration of EBF, and how to improve breast milk supply. Each correct response was accorded a point and no point for each wrong response. A knowledge score was generated for each mother based on the number of correctly answered questions. The practice scale consisted of six items that assessed mothers' practice of EBF relating to the following: recall of EBF in the last 24hrs, mode of breastfeeding, who gave and what kind of food was given to the baby in the mothers' absence, introduction of liquids (i.e. plain water, infant formula, tinned milk, powdered or fresh animal milk, juice/juice drinks, clear broth, yogurt, porridge, herbal teas, solid/marshy foods). The mothers' answers to these questions were used to determine the practice of EBF. The form and nature of these items were provided by the United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys and the Demographic and Health Surveys.

Data collection procedure: Following the successful acquisition of permission, the lead investigators traveled to the neighborhood in order to collect information. During the data collection process, the goals and purposes of the study, and protocols that would be followed, were explained to participants, and their informed permission was obtained. All participants who volunteered to partake in the trial were subjected to a screening process to ensure that they were eligible. The completion of consent forms followed the provision of both written and verbal explanations. Following that, questionnaires were

distributed to all who participated. The questions were administered by respondents who were able to read and write in English at their own time. Those who were unable to read or write in English were given assistance in answering the questionnaires. The questions were translated by the principal investigators into their respective native dialects. Respondents were advised that participation in the data gathering process was entirely voluntary, and that they were able to withdraw from it at any moment without incurring any consequences. The survey usually lasted 10-15 minutes to complete on a computer.

Data Management: Practice of EBF was showed prior to the knowledge and attitude assessment (Food and Agriculture Organization, 2016). An expert panel of nutritionists assessed each item on the questionnaire to ensure that it was genuine in terms of substance and acceptable for the local environment. As a result, local items that are typically fed to newborns in the study site were included in the diet. To ensure that the questionnaire was understandable and easy to administer, it was pretested on a sample of 10 women with infants ranging in age from 0 to 24 months.

Data Processing and Analysis: The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25 for Windows and one-way analysis of variance which were then presented in both tables and prose for the purposes of reporting. Data analysis entails data coding, sorting, editing, and checking for biases by doing a precise count of the study question items and their frequency of occurrences. Data from both qualitative and quantitative sources was gathered and analyzed in the appropriate way. All of the authors read and re-read the responses to all of the open-ended questions they were asked. Discussions and reflections resulted in the identification of common themes. All quantitative data were analyzed using descriptive statistics, which included mean for continuous variables and frequencies and percentages for categorical variables, for the purposes of determining their significance. For the purpose of determining univariate relationships, cross tabulation and chi-square testing were utilized.

3. RESULTS

The results show that, 49.9 % of the mothers involved in this study were below 25years and 40.9 were above 25 years of age respectively. The majority of respondents 61.6% had high education. Most of the women were unemployed and a significant proportion were employed (18.2%). A large proportion of the women in this study (80.3%) were married; the other proportion is composed of widows, the divorced and single mothers. Most of the respondents (65.3%) were Muslims. An overwhelming majority (73.4%) of respondents ever heard about EBF. The main sources of information about EBF were from the hospital and friends.

Table 1. Characteristics of mothers who do and do not practice EBF

	Exclusive breastfeeds	
Variable	**Yes**	**No**
Age of mothers in years		
<25	83 (27.1 %)	70 (22.8 %)
≥25	81 (26.4 %)	72 (23.5 %)
Child's age in months		
<2	100 (32.6 %)	53 (17.3 %)
≥2	40 (13.0 %)	113 (36.9 %)
Employment status		
Employed	20 (6.5 %)	36 (11.7 %)
Unemployed	200(65.3 %)	50(16.3 %)
Educational level		
Low educational level	37 (12.0 %)	80 (26.1 %)
High educational level	119 (38.8 %)	70 (22.8 %)
Parity		
1	75 (24.5 %)	39 (12.7 %)
>1	102 (33.3 %)	90 (29.4 %)
Marital status		
Not married	35 (11.4 %)	25 (8.6 %)

	Exclusive breastfeeds	
Married	190 (62.0 %)	56 (18.3 %)
Religion		
Christian	76 (24.8 %)	30 (9.8 %)
Muslim	160 (52.2 %)	40 (13.1 %)
Knowledge of EBF		
High	200 (65.3 %)	25 (8.1 %)
Low	30 (9.8 %)	51 (16.6 %)

3.1 Knowledge of Mothers on Exclusive Breastfeeding

About 29% of them could not define EBF; the majority defined it as giving the infant breast milk and water, while the rest had no knowledge. Breast milk alone, according to 24% of mothers, is deficient to meet the nutritional demands of the newborn. They justified their position by claiming breast milk alone is not enough for the baby. Others believed that the baby was thirsty and that he or she should be given water to drink. The majority of mothers 91.5% were unaware that breastmilk could be securely kept, and given to the infant while the mothers was not around.

Eight percent (8.9%) of mothers thought herbs/drugs may be used to help them overcome nursing issues, while 6.8% said breastfeeding should be stopped.

4. DISCUSSION

4.1 Knowledge of Exclusive Breast-feeding

Aiming to learn more about EBF, as well as how they felt about it and how they utilized it, we conducted this study among community nursing parents with infants ranging in age from 0 to 24 months. Factors associated with the practice of EBF were also investigated in this sample of participants. A greater number of mothers agreed that breastmilk was the best form of food and nutrition for their infants, and they supported the concept of six months of exclusive breastfeeding, with the majority stating that they learned about it from their health care providers. This is consistent with previous studies [13,1,14]. Generally speaking, the mothers' idea of EBF was better, however there were a few notable gaps.

The use of EBF, on the other hand, has been shown to be less than optimum. The degree of education of the mother, the age of the child, and having a firm knowledge of EBF were all created to be linked with the practice of EBF in this study. Myths concerning the length of EBF and the inadequacy of breastmilk, which has been shown to be an effective means for mothers to meet their children's nutritional needs, are debunked. In addition, the vast majority of mothers were not aware of the numerous benefits of EBF for their children. Previous research has identified knowledge gaps and misconceptions of a similar nature [15-17].

Emphasizing the maternal benefits of exclusive breast feeding (EBF) may motivate mothers to solely breast feed their children. According to the findings of this study, the majority of mothers were more inclined to consult with family and significant others in order to solve breastfeeding difficulties than they were to seek medical attention.

Despite the fact that consulting family and significant others are not always inaccurate, women cannot be certain of the accuracy and quality of the advice and assistance they will receive, leaving them vulnerable to receiving improper counsel and support. Women should be encouraged to seek support when they are experiencing difficulties during their postnatal visits to the health facility by healthcare staff. The utilization of active teaching and learning strategies such as conversations, lectures, slideshows, and presentations could be utilized to bridge the gap between current knowledge and new scenarios in order to close the knowledge gap identified. According to the results of this survey, the vast majority of women are aware that breast milk can be frozen and used later on in the future.

According to the findings of Boateng's (2018) study on exclusive breastfeeding among rural lactating women, which revealed that the majority of mothers were unaware that breastmilk could be saved and used in the future, either for convenience or in the absence of the nursing mother, this result is different from the results of the current study. It was discovered by the researchers in this study that a large number of women were aware that breast milk can be

saved for later use. It is possible that the variance in results is related to the difference in study subjects and setting; rural versus urban individuals. If information about breast milk storage is effectively provided to mothers, particularly working mothers, and if the work environment is made friendly enough to allow for breast milk storage, a private space to nurse, or scheduled breaks to feed baby, the rate of exclusive breastfeeding among working mothers may be improved.

4.2 Practice of Exclusive Breastfeeding

EBF was practiced by 62 percent of the mothers in the study. Despite the fact that this is significantly higher than the 46 percent of Ghanaian children aged less than 6 months who were exclusively breastfed in 2011 (Ghana Statistical Service [GSS], 2011), it is significantly lower than the 64 percent reported by Tampah-Naah and Kumi-Kyeremee [13] using data from the 2008 Ghana Demographic and Health Survey (GDHS) [18]. The prevalence of exclusive breastfeeding found in this study is significantly lower than the 90 percent recommended by the World Health Organization (Jones et al., 2003), suggesting a significant disparity between the desired and actual practice of exclusive nursing.
Inadequate understanding of breast milk's ability to meet nutritional needs of the child, misinterpretation of certain signs of the child as indicating that she/he is showing signs of wanting food to eat, and misinterpretation of the advice of healthcare professionals could all contribute to the low prevalence of exclusive breastfeeding. Similar misunderstandings have been recorded in rural Ghana and other West African countries in the past, according to the World Bank [19,16,15]. Otoo and colleagues (2013) noted that exclusive breastfeeding education is typically provided to mothers at pregnancy and postnatal clinic visits by midwives, nurses, or nutritionists, who deliver health talks on the topic. Based on the findings of previous studies [20], Abaasiati et al. 2014); [21], it is recommended that the content of health talks be evaluated, as well as the mothers' understanding of the messages provided to them, because there are significant gaps in knowledge about exclusive breastfeeding.

4.3 Factors Associated with Practice of Exclusive Breastfeeding

Mothers with a higher level of education were more likely than their counterparts to report a higher level of exclusive breastfeeding practice than their peers. In various research conducted in Ghana (Iddrisu, 2014; [22], the level of education of the mother was revealed to be a significant driver of newborn feeding behaviors (Iddrisu, 2014). It is possible that mothers with greater levels of education will be more able to comprehend and appreciate the benefits of EBF to their infants, as well as more driven to put it into practice [21]. It is suggested that programs for exclusive breastfeeding promotion should be made more appealing to mothers with lower levels of educational attainment. Examples include emphasizing to mothers and their families that exclusive breastfeeding has many benefits, including delaying the return of ovulation, decreasing the risk for developing breast cancer, and providing protection against postpartum bleeding [22], (Aidam et al. 2005).

Another major factor in determining the practice of exclusive breastfeeding was the child's age at the time of conception. Women who had children under 3 months of age were significantly more likely to practice exclusive breastfeeding than women who had children aged 3 months or older, according to the findings. Similar discoveries have been recorded in the past in Ghana and other parts of West Africa, and this is not the first time (Iddrisu, 2013); [23]. As a child's age increases, mothers are more likely to begin introducing additional foods into the child's diet because they believe that breast milk alone may not be sufficient to meet the nutritional requirements of the child. In light of these findings, healthcare providers should pay particular attention to lactating women as their children develop, encouraging and supporting them as they work to overcome obstacles that may prevent them from exclusively breastfeeding their children. In light of the fact that the majority of mothers will return to work as their children grow older, as well as their lack of confidence in their ability to express and store breast milk, it is possible that mothers will start introducing other foods to their children in order to have more time for work and other activities (Abasiatai, 2014). Identifying and addressing common misconceptions among women about expressing and storing breast milk should be a priority in future EBF promotion campaigns.

In order for mothers to be able to express and retain breast milk so that it may be used to feed their children while they are at work, they should be encouraged and supported to learn the necessary skills and build their confidence.

Despite the foregoing, we urge that future research investigate the contributing elements that are responsible for the decrease in the practice of exclusive breastfeeding as a baby grows older in this context, in addition to the foregoing.

Having knowledge of exclusive breastfeeding was discovered to be another element that was connected with the practice of exclusive breastfeeding. Mothers with better knowledge of EBF were more likely to putting EBF into practice than their counterparts with lower knowledge. In line with our findings, studies that report high maternal knowledge of EBF also report high prevalence of the practice of exclusive breastfeeding [24-26], and the opposite is true for studies that report low maternal knowledge of EBF [24,25][27]. Lack of understanding of the benefits of breastfeeding has been attributed to the low rate of exclusive breastfeeding practice in Sub-Saharan Africa, according to the World Health Organization [28].

According to the findings of Mohammed et al. (2014), the age of the mother had no impact on her awareness of and usage of exclusive breastfeeding. It was found that almost all mothers were familiar with exclusive breastfeeding regardless of their age at birth. This contrasted with the findings of a previous research study conducted by Fosu-Brefo and Arthur [6], which found a significant relationship between maternal age and knowledge of exclusive breastfeeding. The vast majority of women demonstrated a high degree of comprehension about the importance of breastfeeding an infant during the study. For example, its importance in protecting an infant from diseases, its role as a great source of nutrients, its role in family planning strategies, and its health benefits for breastfeeding mothers were all well documented.

They also noted that breastfeeding helps to strengthen the bond that exists between a mother and her child. Disdain the datum that most women highlighted how safe, convenient, and cost-effective it is to breastfeed a baby, not every mother was able to put their words into action [29].

5. CONCLUSION

The nutritional state of a child is a clear reflection of the general health condition of the child in question. A high-quality diet helps to keep diseases at bay while also promoting growth. Exclusive breastfeeding is a child feeding strategy that has been widely promoted for its benefits to infant health and survival. The findings of this study provided data on the level of awareness, attitude, and usage of exclusive breastfeeding among mothers. Because of these findings, there is a deeper level of understanding of mothers' grasp of the significance of exclusive breastfeeding. The overall response to breastfeeding was positive, particularly when it came to understanding about breastfeeding, its suggestion, and its benefits. There was a broad positive attitude of lactating mothers' understanding of EBF.

However, their implementation of EBF was less than optimum. Mothers' assumptions and misinterpretations of EBF messages may play a significant influence in determining whether or not EBF is used in their homes. The knowledge of the mother, the degree of education of the mothers, and the stage of the child may all play a role in supporting the practice of EBF. Nurses and other healthcare providers should go beyond the simple presentation of information to encourage and assist women in overcoming the obstacles that prevent them from practicing EBF. Several studies have identified health advocates and health workers as the primary agents of knowledge transmission. This study recognizes the assistance provided by health-care professionals.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

The permission of the leaders of the community was obtained. Respondents were asked to provide both written and verbal consent. Respondents were informed that participation in the study was entirely voluntary and that they might withdraw at any time without incurring any penalty. Each respondent's identity and confidentiality were protected. Responses to the

questionnaire were also assured that any signatures on the consent forms would be separated from the questionnaire and kept under lock and key, and that after two years of the study, the data would be discarded and no records of the data, either electronically or in hard copy, would be available.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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